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# XXVIII. Description of new succulent plants

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it with soap and hot water: if the colour be good, remove it from the charcoal-liquid; if not, allow it to remain another day or until it becomes white: 2 or 3 days are amply sufficient if the process be well conducted. It is advantageous to spread it out thinly upon the grass, wet as it is, and having the charcoal in it, taking care to turn it frequently for a few days: the charcoal greatly disappears, and the surface acquires a pearly appearance.

The flax is now to be rinsed in a large quantity of water: then to be washed thoroughly with soap in hot water, till it is quite clean; the soap must then be washed out by cold water, and the flax dried; if on the grass, exposed to the sun and air, the better.

Before washing out the charcoal with soap, the lustre of the fibre will be improved by steeping it for 8 or 10 hours in water just soured with sulphuric acid; if this process be continued too long, the fibre will be weakened. The acid-steeping is not essential, except the flax be intended for some particular uses.

The charcoal is easily washed out, and that perfectly, with soap. The ultimate fibres are perfectly separated: they are so much finer than silk, that I use them in the quadrant, transit and micrometers: the lustre is precisely that of silk; the strength of the fibre is not at all impaired. It takes such colours as I have tried—blue, pink and yellow—perfectly. The finest thread may be spun.

Having made public the process, and particularly on account of my reason for so doing, I hope that manufacturers and others who can forward the introduction of the material, will bestow some attention upon the subject.

Any persons shall be provided with samples perfectly prepared, by addressing me (post-paid) at Great Ouseburn, near Boroughbridge, Yorkshire.

P.S. It may probably be worthy the attention of the Irish; and particularly since the process may be performed by individuals at their own houses, and may give employment to many paupers in the work-houses.

XXVIII. *Description of New Succulent Plants.* By  
A. H. HAWORTH, Esq. F.L.S. &c.

OF the new Succulent Plants described in this paper, one half were sent to the royal gardens of Kew, from South Africa, by Mr. Bowie; and one of these latter plants has proved to be a new species of *Bowiea*, whose flowers, as Mr. B. assures us, are always in umbels, in the places of their natural occurrence.

occurrence. But for such assurance, we might have thought the plant which very recently flowered at Kew, and which is minutely described below, had not completely developed its inflorescence. This, however, was not the case.

The remaining articles of the Decade have been communicated from other collections and correspondents. One of these, allied to *Tetragonia*, I have thought proper to erect into a new genus; nor will this be wondered at, amongst the almost hundred novelties which I have described in the recent volumes of the Philosophical Magazine.

Chelsea, Nov. 1826.

A. H. HAWORTH.

*Decas octava Plantarum Novarum Succulentarum.*

Classis et Ordo. PENTANDRIA DIGYNIA.

Genus, CEROPEGIA Auctorum.

*stapeliæformis*. C. (lurid trailing) ramis prostratis carnosis

1. loreis luridis teretibus subaphyllis simplicibus fusco-marmoratis.

*Habitat* C. B. S. ubi invenit Dom. Bowie. G. H. 7.

*Florebat* in ditissimo regio horto Kewensi Julio, &c.

A.D. 1826.

*Obs.* Habitus *Stapeliarum* (præcipuè *Orbearum* Nob. earumque crassitudine.) *Rami* 3—4-pedales tertio anno, subtus parcè tuberculatim asperiusculi. *Folia* minutissima ternata remota ferè invisibilia, è locis s. basibus tumentibus persistentibus progredientia, omninò sessilia seu quasi ad caules adnata sine petiolo, subrefracta cordata cuspidata pallida. *Flores* ex alis foliolorum *Stapeliarum* modo, ferè sessiles, at incipientes inapertos vix semunciales solùm vidi.

Classis et Ordo. HEXANDRIA MONOGYNIA.

BULBINE. Willd. *Enum.* 372.—Nob. in *Revis. Pl.*

*Succ.* 32. *Corolla* patens decidua. *Filamenta* barbata. *Sprengel. Syst. Veg.* 2. 7.

*bisulcata*. B. (double-channelled bulbous) foliis pulposis

2. longè subulatis acuminatis; utraque canaliculatis, radice magno bulboso.

*Habitat* C. B. S. G. H. 4.

*Florebat* in aère aperto in terrâ prope murum cum aspectu australi, in Novemb. A.D. 1825. Communicavit amicus Dom. R. Sweet, *Horti Britannici, Geraniacearum, Cistinearum, &c. &c.* utilissimus auctor.

*New Series.* Vol. 1. No. 2. Feb. 1827.

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*Obs.*

*Obs. Bulbus* magnus secundum Dom. Sweet. *Folia* (in aëre aperto) pedalia erectiuscula valdè pulposa nec fistulosa, viridia, utraque latissimè, sed internè altiùs sulcata, obsoletèque sulcato-striatula. *Scapus* in nostro exemplo (an semper?) foliis brevior, teres, erectus, calamo tenuior. *Flores* spicati lutei, ut in affinibus: *filamentis* omnibus barbatis.

*Obs. B. pugioniformi* in magnitudine habituque simillima, certèque in systemate proxima: sed distincta. Distinguitur optimè foliorum sulcis profundis utraque.

BOWIEA. *Nob.* in Phil. Mag. Oct. A.D. 1824.

*Obs.* The discovery of a second species of *Bowiëa* requires the alteration of the generic character, as follows:

*Perigonium* hexapetaloidum erectum s. patens, cylindricum; laciniis subringenter bilabiatis. *Stamina* inæqualia exserta, inclusive, et cum *stylo* flexuoso declinato-adscendentia.

*Herbæ* africanæ succulentæ perennes, *foliis*, *scapis*, *bracteis*que *Aloium* propriarum, *floribus* diversis.

*myriocantha.* B. (umbelled) foliorum marginalibus denticulis numerosissimis; floribus umbellatis.

*Habitat* C. B. S. ubi invenit Dom. Bowie. G. H. 4.

*Florebat* in regio horto Kewensi, Oct. A.D. 1826.

*Obs. Caudex* senectus incrassato-subconicus, et in nostro exemplo nativo biuncialis; in locis natalibus fortè semisubterraneus.

*Folia* multifariè effusa vix numerosa subsemipedalia, 4—5 lineas lata, arcuatim patenti-recurva lorato-linearia crassiuscula attenuatim acuminata submucronata, concavo-canaliculata sordidè viridia seu glaucescentia, *subtus* convexa, rariùsve obsoletè carinulata tuberculato-spinulescentia, asperrima, spinulis minutis respicientibus; *suprà* lævia; ordine sæpè geminato, macularum oblongarum albarum (in medio folii) longitudinaliter dispositarum, rariùs tuberculatim subelevatarum: marginibus (*foliorum*) minutè albo-cartilagineis, denticulis numerosissimis minutissimis albis rectis vel subrespicientibus. *Scapus* vix pedalis erecto-adscendens subflexuosus gracilis teres lævis, internè nudus, supernè *bracteis* latè adpressis acuminatis plùs minùs membranaceis, et aristatis, superioribus magis magisque imbricanter approximantibus; supremis supra flores, in capitulo denso conico sterili mortuo membranaceo

branaceo finientibus. *Flores* 6—8 in spuriâ umbellâ erumpentes ex bractearum alis *Aloïum* modo, (nec ut in *Haworthiâ*) *pedunculis* semuncialibus erectis teretibus lutescentè-viridibus. *Perigonium* pedunculo longius, parùm ringens si vidi perfectum, tribus exterioribus laciniis acuminatis crassioribus, harum *suprema* incurva longior erecta infernè sordidè rosea, supernè virescens viridibus nervis, *inferioribus* (laciniis) conniventibus nec patentibus. *Lacinia* tria interiora (perigonii) breviora teneriora incurva (uti priores) sordidè lutescentia carinulâ viridi. *Stamina*; *filamenta* inæqualia inclusa (in nostro exempl. an semper?) basi perigonii inserta lutescentia; tria ceteris longiora flexuosè declinato-adscendentia, cum *stylo* ab ipso basi flexili. *Stylus* niveus stamina superat, interiores lacinias perigonii æquans, *stigmatè* exiguo trilobo luteo. *Antheræ* defloratæ solum vidi; *polline* aurantio. *Germen* oblongum obtusè sexcostatum.

*Obs.* I will avail myself of the present opportunity of giving an improved specific character and description of *Bowiæ africana*, as follows: "Foliorum marginalibus denticulis numerosis; floribus spicatis."

*Obs.*—*Folia* sublævia. *Flores* patuli, laciniis obsoletè bilabiatis, apice subrevolutis, *genitalibus* exsertis.

HAWORTHIA, Duval. in *Cat. Pl. Succ. in Hort. Alenc.* A.D. 1809.—et Nob. in *Synops. Succ. &c.*

*Sectio*, CAULESCENTES, rariùs pedales, foliis rigidis 3—5-fariis densè imbricatis, sæpè spiraliter tortis; et sæpiùs saturatè viridibus.

*torquata*. H. (long, twisted triangular) foliis trifariis sub-  
4. patulo-recurvulis sordidè viridibus asperiusculis; caule torquato.

*Habitat* C. B. S. G. H. h.

*Floret* ut in affinibus.

Communicavit Illustr. Princeps De Salm Dyck, ut var. ejus *Aloe pseudo-tortuosæ*. Sed magis approximat *Haworthiam pseudo-rigidam*, Salm; foliis quàm in eâ rectoribus, lævioribus pallidioribus. Etiam simulat *H. tortuosam* Nob. at cum foliis minùs rectis pallidioribus tuberculis longè minoribus sineque lente invisibilibus, sed longissimè numerosioribus, inferiorem paginam (foliorum) creberrimè occupantibus.

## Classis et Ordo. DODECANDRIA MONOGYNIA.

PHACOSPERMA. *Genus novum.**Calyx* diphyllus.*Corolla* 5-petala.*Stamina*; filamenta 13.*Capsula* 1-locularis polysperma.*Semina* lenticularia minuta.*peruviana*. P. (Peruvian.) — *Habitat* in Peru?5. *Floret* Jun. Jul. &c. G. H. ☉. s. ♂.

*Obs.* *Herba* radice subfusiformi fibroso. *Caulis* pedalis erectiusculus debilis flexuosus obsoletè hexagonus. *Folia* alterna lineari-lanceolata, carinulata subcarnosula viridia internodiis longiora, ad margines hispidiuscula, obsoletè decurrentula, inde caulis angulosus. *Flores* spicati pedunculati mane aperti. *Spicæ* terminales longæ. *Pedunculi* solitarii erecti, bractæa foliiformi breviores; imi geminati plûsve, filiformes; superiores confertiores sensim breviores subangulati clavati. *Calyx* diphyllus amplus foliolis 4-angularibus rhombeisve erectis crispis, apice carinatis, acumine producto, florem et capsulam amplectentibus. *Petala* 5, obovato-cuneata saturatè purpurea sive rubicunda, basi imbricantia, calyce ferè duplò elatiora. *Stamina* (*filamenta*) brevia lente ramentacea. *Antheræ* (in-nuptæ) utraque obtusæ aurantiacæ petalis 3—4-plò humiliores. *Stylus* 1, validus brevissimus atropurpureus, staminibus humilior, *stigmatè* sexlobulato magno concolore. *Capsula* oblonga subacuta obtusè subtri-quetra (rariùs tetraquetra) unilocularis polysperma; *seminibus* minutis lenticularibus nitentibus, è fundo capsulæ pedicellatis. *Semina* vix perfecta, solùm vidi.

*Obs.* I found this plant in flower in Chelsea garden in June 1825, under the name of *Tetragonia peruviana*; but find no published description of it. It is distinct as a genus from *Tetragonia*, as sufficiently appears above: and other genera will probably recede from *Tetragonia*, as soon as I can procure and re-examine living specimens of the different species in a proper state of fructification.

## Classis et Ordo. DODECANDRIA DODECAGYNIA.

SEMPERVIVUM *Auctorum.*

*Sectio*, GRANDIFOLIA *Nob.* Caules frutescentes succulenti

culenti erecti. *Folia* maxima in rosulas terminalia, cuneato-spatulata, &c.

*urbicum.* S. (great bicuneate) foliis decurrenter subpetiolatis

6. longissimè cuneiformibus, apicem versùs latissimè obcuneatis, cuspidè parvo.

*Habitat* fortè in Canariis. G. H. ½.

*Flores* non vidi.

*Obs.* Sub hoc nomine occurrit in Hort. Chels. in tepidario: sed in libris nondum inveni. *Suffrutex* nunc subbipedalis, duplò major quàm *S. arboreum*; simplex, foliis magis petiolatis, magisque divergentibus subquadri uncialibus viridibus cartilagineo-ciliatis, apicem versùs minùs spathulatis, cuspidè roseo.

*retusum.* S. (great retuse leaved) simplex: foliis altè cuneatis

7. expansis lævibus ciliatis, apice subcuneatis truncatis retusis.

*Habitat* in Insulâ Teneriffè, in muris, tectis, &c. copiosè, ubi invenit amicus Dom. Thom. Edwards, succulentarum plantarum cultor; qui in Angliâ benè cultabat A. D. 1824. Præcedenti, simillimum at majus, et satis foliorum retusorum formâ differt. In cæteris convenit, nunc humilior ferè duplò: sed in natalibus locis bipedale magnum potiùsve maximum, secundùm Dom. Edwards, foliorum capitibus, latitudine plusquam pedalibus, *Caulibus* ferè semper simplicibus.

*Flores* non vidi; sed secundùm Dom. Edwards lutei et distantiores quàm in *S. arboreo*. G. H. ½.

*frutescens.* S. (small tree) simplex: foliis capitatim incurvo-

8. congestis spatulato-cuneatis viridibus ciliatis.

*Habitat* in Insulâ Teneriffè.

*Obs.* Cum priore invenit amicus Dom. Thom. Edwards, et cum eo cultabatur A. D. 1824.

*S. arboreum*, affine, at adhuc solùm semipedale, foliorum capitulis duplò minoribus magis compactis. In cæteris adhuc quadrat.

*Flores* non vidi. G. H. ½.

Classis et Ordo. ICOSANDRIA MONOGYNIA.

CEREUS *Miller.*—*Nob.* &c.

*tenuispinus.* C. (long wool-spined) subtriangularis: spinis

9. crebriùs fasciculatis elongatis tenuissimis, lanâ longioribus et ferè laniformibus.

*Habitat* . . . . Parvam incipientem plantam solùm nuper

nuper vidi sub hoc nomine inter alias rarissimas plantas in horto Dom. Tate, in vico Sloane-street.

*Habitus* fortè ut in *C. triquetro* Nob.—*Flores* ignoti: sed prope id locarem. St. h.

*gracilis*. *C.* (slender, long-spined) suberectus, teretiusculus: 10. spinis antiquis solitariis rectis uncialibus, incipientibus geminatis plúsve, albis.

*Habitat* in Americâ calidiore. St. h.

*Obs.* Unam plantam 4-entalem virescentem simplicem apud Dom. Loddiges solùm vidi, cum duabus incipientibus ramulis recentè pullulatis. Plantæ facies est ferè ut in *Euphorbia Hystrix* Auctorum, at adhuc minùs spinosa, duplò brevioribus spinis. An rami in ætate 3-angulares? *Flores* adhuc ignoti. Affinis fortassè *Cerei nani* Kunz: (quod non vidi) et prope id locarem; sed nihilominùs fortè longè major, et sine areolis; ut in *Cereo nano*.

P.S. Having, since my last communication, detected an error in my fourth Decade of New Succulent Plants, page 33, line 13, (in the Philosophical Magazine for August 1823), have the goodness to notice it as follows:

“*For hæmisphericæ; read orbiculari.*”

XXIX. On the Accidents incident to Steam Boilers\*. By JOHN TAYLOR, Esq. F.R.S. F.G.S. F.H.S.

IT has been remarked by some practical men who have had most opportunity of examining the circumstances under which the bursting of boilers has taken place, that the causes have sometimes appeared to be not of that simple character which is commonly assigned to them; and that some such accidents have occurred where neither excessive expansive force of steam, neglect of the usual precaution, weakness of material or bad construction, existed to a degree equal to the effect. Mr. Woolf in a conversation upon this subject some time since, expressed to me his opinion of some case where, as he thought, there was ground to suspect the operation of an explosion of gas in the flues, or at least outside the boiler. Any inquiry or discussion into the causes of circumstances which continue to be a reproach to our mode of using steam, must, I conceive, be useful; and my principal object will rather be to provoke it, and to encourage a record of facts, than to propound any particular theory of my own, though I admit that some recent cases appear to countenance Mr. Woolf's idea.

In the mines of Cornwall, and in those of North Wales, the

\* Communicated by the Author.